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Name

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Signature

November 16, 2005

Date of Signature

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant: Botelho et al.

Serial No.: 10/825,989

Filed: April 16, 2004

For: Dual Overhead Camshaft V-2 Engine

Examiner: Noah P. Kamen

Group Art Unit: 3747

**APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. §41.37**

Mail Stop Appeal Brief  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. §41.37, Appellants submit the following:

**REAL PARTY IN INTEREST**

Advance Performance Engineering, LLC, having a mailing address at 71 Cogwheel Lane, Seymour, CT 06483, is the real party in interest.

**RELATED APPEALS AND INTERFERENCES**

There are no pending appeals or interferences related to this application.

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#### **STATUS OF CLAIMS**

Claims 1-7 are pending in the application.

Claims 1-7 stand finally rejected.

Claims 1-7 are offered for appeal.

#### **STATUS OF AMENDMENTS**

No amendments have been made subsequent to final rejection.

#### **SUMMARY OF CLAIMED SUBJECT MATTER**

Around 1984 the Harley-Davidson Motor Company introduced the 1340 EVOLUTION® motorcycle engine (EVO), and Harley-Davidson continued to produce models that utilized the EVO engine until about 1999. The original factory EVO engines have specific frame and power transmission mounting components and locations.

Because of the popularity of the EVO engine and the large aftermarket following that it has gained, the EVO engine is arguably the most widely used platform for custom builders and performance enthusiasts. The majority of engines for this platform have the following configuration: narrow angle V-2 engines with in-line connecting rods/in-line cylinders; roller bearings for the main bearings and rod bearings; and single or double camshafts mounted in the case with pushrod valve actuation, and two valves per cylinder.

The present invention is a completely different type of V-2 engine for this platform, with four valves per cylinder, dual overhead camshafts, offset cylinders having a relatively narrow bank angle of 40 to 50 degrees, and a single crankpin crankshaft. The engine of the present invention fits onto the

stock front and rear EVO crankcase mounts, the stock primary drive and crankshaft mounting locations, and within the frame rails of a stock size EVO chassis.

**GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

1. Whether Claims 1-7 are obvious in view of Itoh (U.S. Patent No. 4,671,216) under 35 U.S.C. §103?

**ARGUMENTS**

**Ground 1:**

Whether Claims 1-7 are obvious in view of Itoh (U.S. Patent No. 4,671,216) under 35 U.S.C. §103?

**Arguments relating to Claims 1-7**

With regard to the 35 U.S.C. §103(a) rejection, it is respectfully submitted that it would not have been obvious to modify the engine disclosed in Itoh as suggested by the Examiner because doing so would destroy the intended function of the engine. A modification that renders the prior art inoperable for its intended purpose is inappropriate. *In Re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992). The Itoh patent discloses an engine with a transmission and clutch integral with the engine. Specifically, in Fig. 7 an integral transmission with a main shaft 38 and a countershaft 39 and a clutch assembly is shown. The Itoh engine would not fit into the stock EVO platform for at least the following reasons: a) the physical dimensions would not allow a front and rear motor mount to mate with the EVO engine mounting locations; and, b) the output from the transmission is a driveshaft to the rear wheel. In Fig. 7, the Itoh patent shows an output shaft from the transmission

which would supposedly connect to a driveshaft. This would not conform in any way to an EVO drivetrain design. The stock EVO platform requires a chain or belt drive to the rear wheel in order to conform to the stock design parameters. Accordingly a stock transmission or primary drive system for the EVO engine would not be able to be used with the Itoh engine.

There is no teaching in the Itoh reference to modify the design to fit the engine into a stock EVO platform. In *In Re Oetiker*, the court reiterated that, "there must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination and that knowledge cannot come from the Applicant's invention itself. *In Re Oetiker*, 977 F.2d 1443 (Fed. Cir. 1992). In the absence of Applicant's teaching there is no motivation in the record to modify Itoh as suggested by the Examiner. The Examiner states that "the present specification admits 'many aftermarket engine manufacturers produce their designs based on this EVO mounting configuration.'" This background statement does not show that Applicant's unique combination of engine features arranged in an EVO platform would have been obvious to a person of ordinary skill in the art.

Further, Itoh refers to cylinder bank angles less than 90 degrees but only discloses a V-2 engine with a 70 degree cylinder bank angle. Itoh repeatedly refers to an angle between the cylinders of 70 degrees (Col. 1, line 54; Col. 1, line 59; Col. 1, line 61; Col. 1, line 64; Col. 2, line 3; Col. 2, line 7; and Col. 2, line 36). Although the Examiner has argued that the drawings show a different angle (45 degrees), the drawings are not to scale and it is respectfully submitted that the

written description should control as the 70 degree angle is mentioned repeatedly and is even specifically included in the brief description of the drawings. This teaching of a relatively wide angle (70 degrees) V-twin configuration does not disclose, teach or suggest making a much narrower (40 to 50 degree bank angle of Claim 5) bank angle design. And certainly does not disclose, teach or suggest an engine of the present invention for the stock EVO platform.

Because there is no teaching or suggestion in the Itoh reference to modify the design to fit into the stock EVO platform and because modifying the Itoh engine as suggested by the Examiner would destroy the intended function of the Itoh reference (an engine having an integral transmission and clutch and having a driveshaft to the rear wheel), it is submitted that the 35 U.S.C. §103 rejections of Claims 1-7 are not proper and should be removed.

### Conclusion

The Board is respectfully requested to reverse the 35 USC 35 USC 103(a) rejection of record because the Examiner has not met his burden to establish prima facie obviousness for the reasons detailed above, and to find that Claims 1-7 define patentable subject matter over the art of record.

Respectfully submitted,



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November 16, 2005

**CLAIMS APPENDIX**

Claims 1-7 on appeal:

1(Original). A V-2 engine comprising:

a crankcase;

a crankshaft rotatably supported in the crankcase, the crankshaft defining a longitudinal axis;

one crankpin disposed on the crankshaft at a position spaced apart from the longitudinal axis;

two cylinder blocks each having a cylinder head, the cylinder blocks mounted to the crankcase such that the cylinder blocks are arranged at an angle to each other, the cylinder blocks being offset from each other along the longitudinal axis such that a first connecting rod in the first cylinder block and a second connecting rod in the second cylinder block are capable of being connected in side-by-side fashion to the one crankpin, the engine being air-cooled by fins located on the cylinder head and cylinder blocks;

four valve mechanisms mounted to each cylinder head;

two camshafts mounted to the cylinder head of each cylinder block;

a power transmitting mechanism for transmitting rotational power from the crankshaft to the camshafts to drive the valve mechanisms; and,

wherein the crankcase fits onto stock front and rear EVO crankcase mounts and the crankcase mates with stock EVO primary drive and crankshaft mounts.

2(Original). The engine of Claim 1, wherein the cylinder blocks have a plurality of fins disposed thereon.

3(Original). The engine of Claim 1, wherein two of the valve mechanisms are intake valves.

4(Original). The engine of Claim 1, wherein two of the valve mechanisms are exhaust valves.

5(Original). The engine of Claim 1, wherein the cylinder blocks have a bank angle of approximately forty to fifty degrees.

6(Original). A V-2 engine, comprising:

- an air-cooled crankcase;

- a crankshaft rotatably supported in the crankcase, the crankshaft defining a longitudinal axis;

- two crankshaft journals disposed on the crankshaft at a position spaced apart from the longitudinal axis;

- two cylinder blocks each having a cylinder head, the cylinder blocks mounted to the crankcase such that the cylinder blocks are arranged at an angle to each other, the cylinder blocks being offset from each other along the longitudinal axis such that a first connecting rod in the first cylinder block and a second connecting rod in the second cylinder block are capable of being connected in side-by-side fashion to the two crankshaft journals;

- four valve mechanisms mounted to each cylinder head, the four valve mechanisms including two intake valves and two exhaust valves;

- two camshafts mounted to the cylinder head of each cylinder block;

a power transmitting mechanism for transmitting rotational power from the crankshaft to the camshafts to drive the valve mechanisms; and,

wherein the crankcase fits onto stock front and rear EVO crankcase mounts and the crankcase mates with stock EVO primary drive and crankshaft mounts.

7(Original). The engine of Claim 6, wherein the cylinder blocks have a bank angle of approximately forty to fifty degrees.



